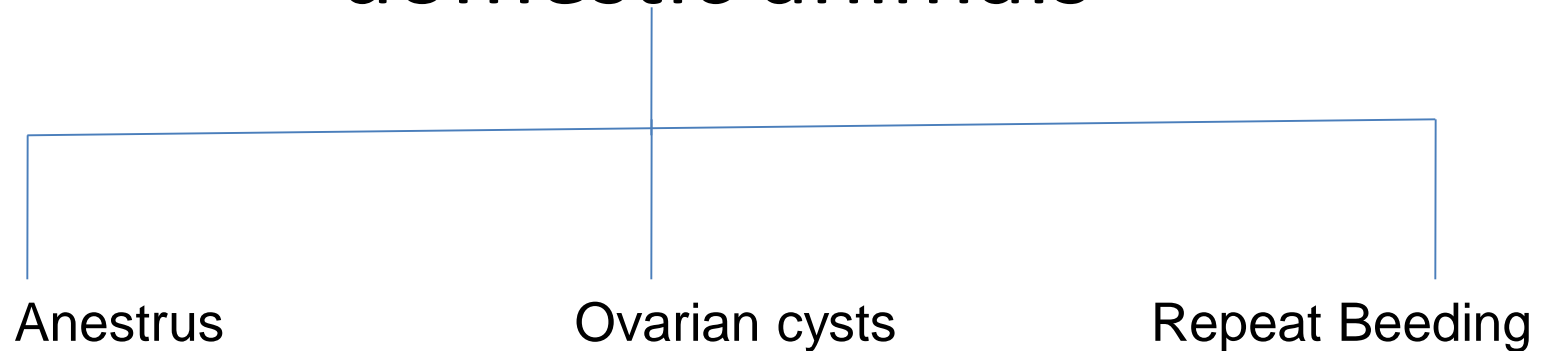


## Functional causes of Infertility in domestic animals





# **Anestrus:** Lack of estrus expression

- Prepubertal
- Post-service
- Post-partum



Anestrus

Congenital

Nutritional

Seasonal

Pathologic



## Predisposing Factors are

- **Inadequate nutrition**
- **High ambient temperatures**
- **High parasite burdens**
- **Disease**



# **Prepubertal anestrus**

- Affects heifers

Lack of estrus expression could be because of

**Poor Management**

**Debilitating disease like BVD**

**Poor nutrition**

**Abnormal reproductive tracts**

**Chromosomal anomalies**

**Use of growth promoting implants**



# Postpartum Anestrus

- FSH Surges occur as early as 10-15 days post partum however cows show first post-partum estrus by day 21-30 post partum

## Predisposing factors


**Suckling** : inhibits cyclicity by decreasing LH

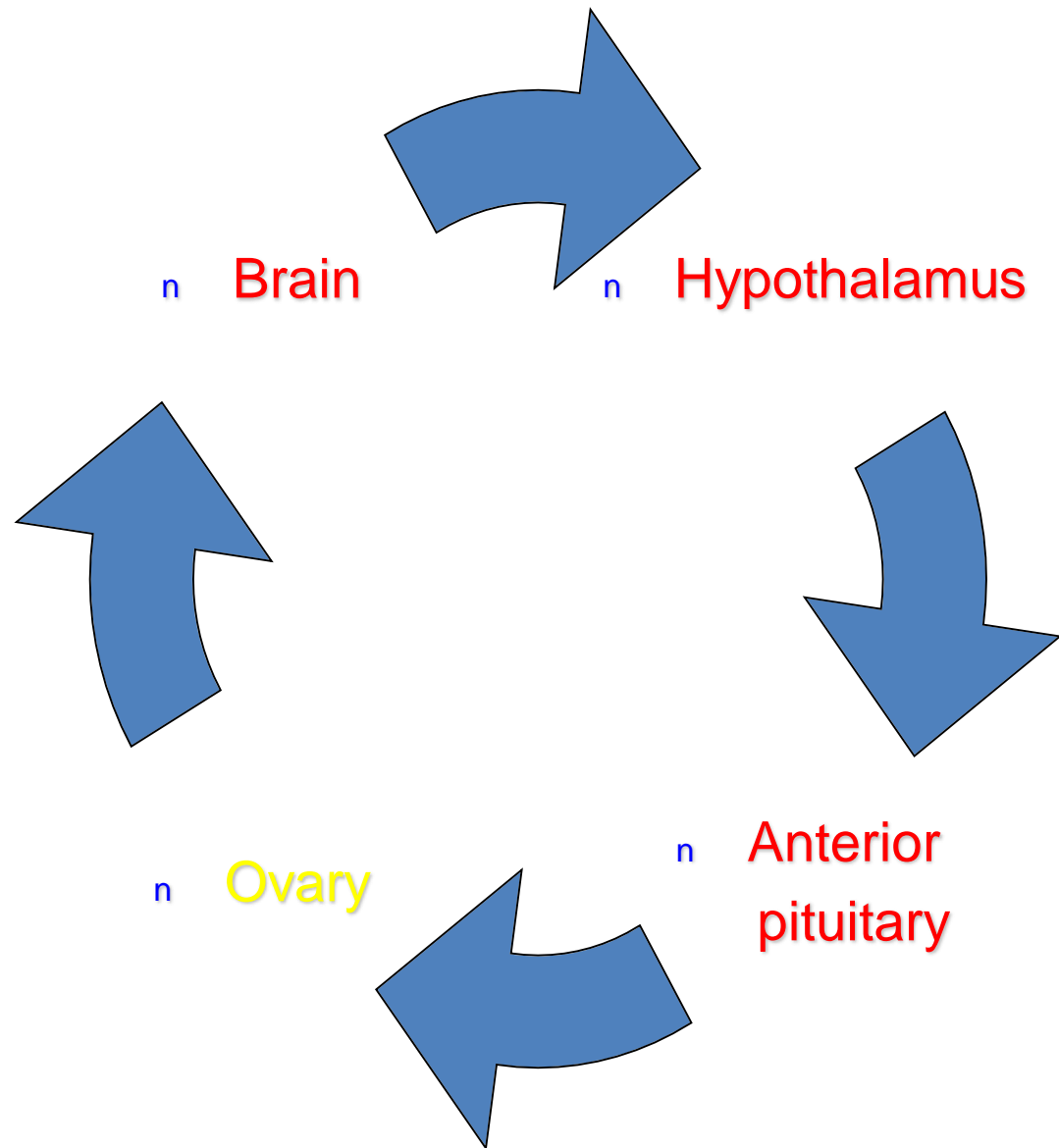
**Stress**: Increased corticoids decrease LH and also decrease sensitivity of pituitary to GnRH



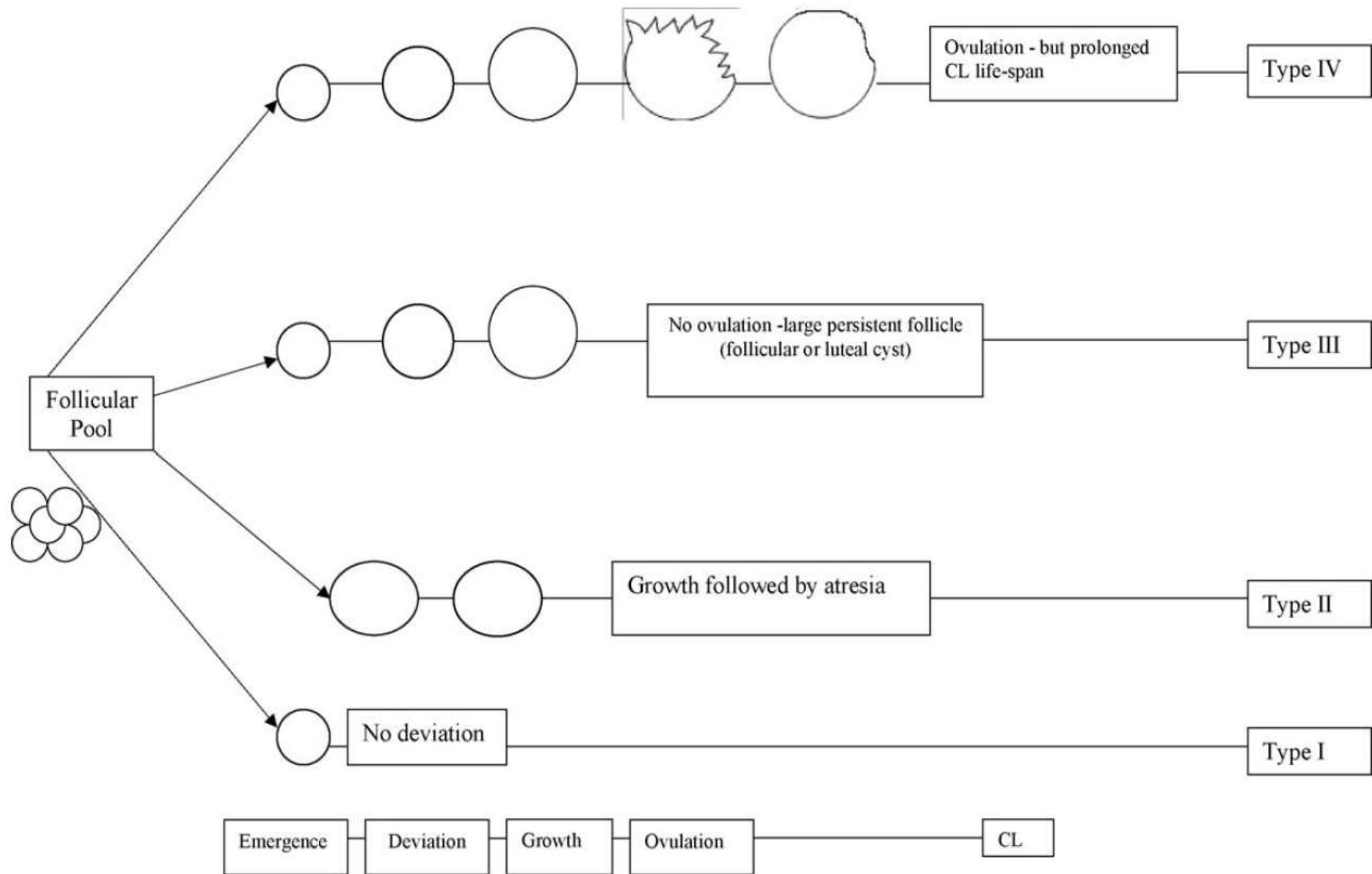
## Nutrition:

Negative energy balance and high protein both not good

-  Nutrition affects **brain** by **neuropeptides**, it affects **liver** to release **IGF-1** and **pancreas** to secrete **insulin** both of which affect follicle development









# **Disease:** Systemic or Uterine

**Retained Placenta**

**Metritis**

**Chronic prolapse**

**Hydrops amnii**

**Hydro-allantois**





# Post-Service Anestrus

- Pregnancy
- Luteal ovarian cysts
- Estrus Detection failure
- Pyometra
- Fetal mummification
- Granulosa cell tumor
- Fetal maceration





**Diagnosis:** History + Rectal Exam.

**Mandatory** to Exclude Pregnancy first

Evaluate cyclicity

## **Therapy**

Improve nutrition

Mineral vitamin supplementation

Weaning

Reducing heat stress

Increasing cow comfort



**Hormonal Therapy** — should be attempted only when nutrition and management are optimum and cows have body reserves

■ **Estrogen**      Progynon depot 2 mL IM

■ **FSH**              Folligon 800-1000 IU    IM

■ **GnRH**            Receptal 5 mL IM

■ **PG**                Only to be given when CL

is present Lutalyse 5 mL IM, Cyclix or  
Pragma or Lustin 2 ml IM

Repeated injection only  
suggested in cyclic animals





## Progesterone implants or Injections safest

- Injection Duraprogen 750 mg 4mL + Vitamin A injection 14 mL  
2mL daily IM for 9 days

Progesterone + estradiol, CIDR for 9 days followed by withdrawal

Progesterone + FSH or GnRH

Synchromate-B ear implant (norgestomet)

Melatonin + antiprolactins for buffalo

Shang treatment = weaning + Synchromate B

Uterine motility stimulation- Lugols Iodine, manual massage

Antiestrogens: Clomiphene 300 mg orally daily  
for 3 – 5 days



# Summer Anestrus in buffalo

- Buffaloes have poor thermoregulation mechanism
- Seasonality of reproduction known to be affected by daylight and melatonin
- Thermal stress reduces follicular activity
- High prolactin in lactating buffaloes known to affect reproductive cycles



Buffalo respond favorably to improved management including provision of shade, wallowing ponds and proper nutrition

Therapy of anestrus in buffalo during the breeding season is similar to cattle. Melatonin treatments have shown promise.



## **Anestrus mares**

**Management of the transition period** is more important and usually light treatments are used 60 watt incandescent bulb in a stable starting in december leads to early cyclicity during January and passage of the irregular cycles before the breeding season. Other drugs suggested are the administration of domperidone 1.1 mg/Kg or sulpiride 1.0 mg/Kg orally for 10-15 days. GnRH agonists like deslorelin are being used at many places.

Terminating luteal phase with use of PG's is less successful due to idiosyncracies of its effect and the laminitis that may develop following the use of PG's.

Oral progestagens like altrenogest (0.044 mg/Kg/day) for 15 days are commonly used in foaling mares to delay the first foal heat to obtain optimum fertility.



## Anestrus sows

Boar exposure brings early maturity in gilts as early as 5 months.

Estrus induction is dependent on the age of pigs for

Prepubertal gilts less than 160 days of age Boar exposure of 30 min/ day is sufficient

For Prepubertal gilts of more than 165 days of age GnRH, E2 + PG or PG 600

(contains 400 IU eCG + 200 IU

hCG) is suggested

For cycling gilts oral altrenogest 15 mg/gilt/day for 18 days is suggested.

For lactating sows weaning + PG 600 are suggested



# Anestrus in bitches

Consider the season and nutrition

Bitches with prolonged inter estrus intervals (10 to 18 months) (secondary anestrus) are usual candidates for estrus induction.



# INVESTIGATIONS

Pubertal bitches (>24 months) with a history of anestrus (primary anestrus) should be thoroughly investigated using physical examination and laboratory tests including hemogram, blood biochemistry, serum thyroid profiles and serum progesterone before initiating estrus induction.

Bitches with thyroid insufficiency or chronic debilitating diseases have normal reproductive performance after treatment of these disorders.

Bitches with chromosomal abnormalities or poor genital development require karyotyping and ultrasonography for diagnosis, and such bitches do not respond to most therapies



Prostaglandins by themselves do not induce estrus in the bitch and produce unwanted side effects (vomition, salivation, diarrhea, tremors and abdominal pain) hence not suggested

Single intramuscular administration of GnRH has no value for estrus induction in the bitch.

Administration of 100µg/kg of leuprolide acetate followed by administration of 3µg/kg of gonadorelin on the first day of induced estrus resulted in all treated bitches showing proestrus within  $4.67 \pm 0.25$  days



Nine daily injections of 75 IU of hMG

eCG at the dose of 20 IU/kg/day, for 10 days during anestrus and followed by an hCG (500-1000 IU)

Antiprolactins (50-100  $\mu\text{g}$  /Kg bromocryptine orally for 10-18 days) but do not give domperidone or metoclopramide if vomition occurs instead divide the dose and administer orally or give Promethazine (Phenergan syrup) for vomition prevention.

Orally administered cabergoline, at doses of 5 $\mu\text{g}$ /kg/day, induced normal, fertile proestrus in 15-25 days



## **Anestrus sheep and goats**

Estrus induction during the breeding season involves the use of nearly all treatment used for cows like PG, oral or intravaginal progestagens, eCG and GnRH. During the transition period the male effect (introducing a male in a goat herd induces estrus) and melatonin and antiprolactin treatments are important however, during the non-breeding season estrus induction in goat or sheep involves the use of melatonin or light manipulations and the use of progestagens combined with eCG. PGs are ineffective during the non-breeding season.



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Narayan Purohit** if you like it.